REMARKS

Claims 1-30 and 34-51 remain in this application. Claims 1-2, 6, 8-11, 16, 21, 26, 34, 36, 39, and 42-43 have been amended. Claims 31-33 have been cancelled. Claims 44-51 have been added.

Initially, the Applicant would like to express its gratitude toward the Examiner for taking the time to discuss the present application by telephone interview on July 30, 2003. In the interview, an agreement was reached with the Examiner to allow the Applicant "three months from the mailing data of the advisory, 07/24/03, to response [sic] because PTO was late in sending a reply." See Interview Summary dated August 4, 2003. The amendments herein reflect the subject matter discussed by telephone with the Examiner and are believed to place the claims in condition for allowance.

Before addressing the merits of the rejection based on prior art, a brief description of the present application is provided. The present application is directed toward graphics applications in digital data network environments (such as Ethernet networks, LANs and/or WANs), rather than analog networks (such CATV networks).

Computers on a network can be categorized as two types: servers and clients. In addition, a client can be further described as a thin client (as opposed to a thick client or a full-featured work station). A thin client is a small, stateless, "plug and work" desktop computer whose main function is to process all input and output for the user and to manage communication with at least one server. All other computational tasks (or services) for the user are performed on the server, which is shared amongst a community of thin clients via a digital network. Thus, computational tasks (e.g., clipping before scaling) that normally would be performed by the client are off-loaded to the server, permitting simplification of the client (i.e., the thin client) on the digital network.

Because the thin clients of the present invention are stateless (i.e., devices that process information without any knowledge of previous/subsequent information), a user's information can be instantly sent to any thin client within the network by the server (or server group). That is, a user can be in the middle of a user session (e.g.,

typing an email message) on one thin client, move to another thin client and then resume the user session exactly where the user left off. Similarly, if a thin client fails, a user can move from the failed thin client to another thin client without losing any work.

In an embodiment of the invention, a server acquires video data for transmission to a thin client that displays the video data. After acquiring the video data, the server performs the necessary clipping to bring the video data into conformance with a video display of the client (e.g., clipping based on a copy of a clip-list residing on the server and identifying a visible region displayed on the client so that window contents from multiple sources can coexist without interfering with each other) before transmission to a receiver on the client. The server then transmits the clipped video data over a local digital data network (i.e., a LAN) to the receiver on the thin client for display. One of the advantages of clipping video data (e.g., window clipping) at the server end is that the bandwidth requirements at the network for transmission of the video data are reduced due to permanent extraction or elimination of the video data (as opposed to compression/decompression) by the clipping process at the server. Moreover, this off-loading of the clipping (or data occluding) duties from the thin client to the server via the computer network permits simplification of the thin client because software and hardware (e.g., a window manager) for performing these duties are not needed at the thin client.

In addition, an embodiment of the invention achieves a further reduction in bandwidth requirements and further simplification of the thin client by performing the up-scaling of the clipped video data only at the receiver on the thin client. One reason for the segregation of scaling duties is that scaled-up video data requires more network bandwidth to transmit through the local area network. By up-scaling video data only at the client end, the present invention avoids sending video data to the receiver that would be discarded later by the client.

Furthermore, before transmission of the clipped (or occluded) video data, the server may also compress the video data to achieve further savings in bandwidth. It should also be apparent to those skilled in the art that the clipped and compressed

video data needs to be decompressed (but not de-clipped) at the client before the video data can be displayed. Specifically, in one embodiment, using a quantized differential mechanism, the luma values of the video data are compressed at the server and decompressed at the client; using a subsampling mechanism, the chroma values are compressed at the server and decompressed at the client.

To summarize, the present invention is directed to a system and method that provide for the clipping/compression/transmission of multiple video data sources from multiple sever-computers to a single thin client computer. By contrast, it should be appreciated that the general philosophy in designing display systems is to defer clipping as far away as possible from the video data sources (i.e., the server or servers that obtain the original image data) and clip at the lowest level of the system at a central point (e.g., the Nguyen patent). In fact, the primary focus of current industry graphic standards/specifications for data clipping is at the point of putting data into the frame buffer of the end display. Indeed, industry trends such as Microsoft's Longhorn display technology take this focus even further by not clipping the video data until the actual display output is being generated by the video output hardware (i.e., at the analog display raster or digital dvi output generator). The present invention, on the other hand, pushes in the opposite direction of the general philosophy and industry standards/trends. That is, the present invention clips the video data as soon as possible by clipping video data (by using distributed video stream application servers) before the data is transmitted to the thin client for storage in the thin client frame buffer and video display output.

Claims 1-43 presently remain rejected under 35 U.S.C. §103(a) as being unpatentable over Nguyen in view of Munson. These rejections are respectfully traversed.

Specifically, on page 2 of the Advisory Action, the Examiner asserted that the cited reference (Nguyen) discloses the amended limitation of transmitting a clipped image from a transmitter on a server directly to a receiver on a client and refused to enter the propose amendment to the claims (i.e., the recitation of a server that

transports clipped video data directly to a client). Based on this assertion, the Examiner refused entry of the proposed amendment. However, a full review of Nguyen indicates that it only discloses that the server communicates video data with its analog client via a C-box (i.e., a separate converter). That is, Nguyen's server only transmits video data via a digital network to the C-box, which converts the digital video data to analog video data and transmits the converted video data to the client for display via an analog network. By contrast, it should be appreciated that, unlike Nguyen, the server of the present invention communicates video data directly, i.e., without conversion, to the end client for display of the video data without requiring use of a separate converter (e.g., C-box for converting digital video data to analog video data). Thus, Nguyen does not disclose or suggest the amended limitation. However, to further clarify the claim recitations and to expedite allowance, the phrase "via a computer network without conversion" has been added to the recitations of the claims (i.e., the phrase "without conversion" has been substituted for the non-entered claim recitations of the word "directly" in independent Claims 1, 11, 21, and 34).

In addition, on page 3 of the Office Action dated December 18, 2002, the Examiner acknowledges that "Nguyen *fails* to specially disclose clipping image." To make up for this deficiency, the Examiner indicates that Nguyen "generally discloses video clip in figure 4 (col. 4, lines 27-52) by compress and decompress video images." The Office Action then indicates that, "Munson specifically teaches clipping image by clipping a video image . . . prior to being buffered in the graphics memory." The Office Action then concludes: "It would have been obvious to combine the teaching of Munson to the system of Nguyen... ."

One of the main problems with the above conclusion is that the compression and decompression video data are not equivalent and, therefore, should not be confused with clipped video data. That is, video data that is "compressed" must be later "decompressed" before it can be displayed properly. By contrast, one of the main objectives of clipping video data is to not display the data that has been clipped or occluded. Thus, the Applicant respectfully submits that Nguyen does not disclose or

suggest clipping of video data "in figure 4 (col. 4, lines 27-52) by compress and decompress video images" (because video clipping is not a specie or a category of video compression and decompression).

In addition, Nguyen is only directed to delivering of video data (a video clip) and not clipping of video data, over an analog network separated from a digital data network to an end station for display. The purpose for delivering video data over the analog network to the end station in Nguyen is that the analog network has a lower cost and a higher bandwidth. However, in order to utilize the analog network, Nguyen specifically discloses that its video data has to be decompressed (and D/A converted) before it can reach its end station for display. Thus, Nguyen does not pass its compressed video data to an end station for display and, therefore, certainly also cannot suggest passing clipped video data to an end station for display.

By contrast, the present invention is directed to the use of a digital network for the delivery (and transport) of clipped video data from the server directly to the actual terminal device for display in order to simplify the terminal device (i.e., the thin client). Thus, because Nguyen addresses a completely different problem of broadcasting the video data over a low cost, high bandwidth analog network (at the expense of having to decompress the digital video data and turn the decompressed digital video data into analog data before transmitting it to its end station), there is no suggestion, teaching, or motivation to combine Nguyen with any other reference (e.g., Munson) to teach clipping of video data at the sever via a digital network to reduce the actual amount of digital data sent to an individual thin client for display prior to this invention. Such a rejection represents an impermissible use of hindsight in an attempt to reconstruct missing features in the prior art.

Moreover, since Nguyen teaches that its video data has to be decompressed before it can reach its end station for display via its analog network, Nguyen actually teaches away from a thin client of the present invention that can directly receive compressed (and not just clipped) video data for display.

Lastly, the Munson reference is only included for its disclosure of clipping of video data. First of all, it should be noted that there is no teaching or suggestion to combine the implementations of digital data transfer within a single computer (having a graphics memory for storing the clipped video data) in Munson with the transmission of video data from a server (to a C-box over a digital network) to an end station over an analog network in Nguyen. In addition, there is no motivation to combine the compression and decompression of video data in Nguyen with the unrelated video data clipping within a single computer system in Munson. That is, the combination of the single computer system in Munson with Nguyen's analog system is nothing more than hindsight reconstruction based on the teaching of the present invention. Regardless, Munson (either alone or in combination with Nguyen) fails to make up for the deficiencies of Nguyen discussed above.

Thus, the claim limitations, as previously presented, are not shown or suggested by Nguyen and Munson because they do not teach all the limitations in the claims of the present application, and there is no teaching to combine Nguyen with Munson. Nevertheless, in order to expedite allowance and/or to place the claims in better form for appeal, the Applicant hereby amends Claims 1-2, 6, 8-11, 16, 21, 26, 34, 36, 39, and 42-43 and adds new Claims 44-51 to further clarify the claims (e.g., by reciting a server that transports clipped video data over a digital network directly to a thin client in the claims).

In view of the foregoing, the Applicant respectfully submits that Claims 1-30 and 34-51 are in condition for allowance. Reconsideration and withdrawal of the rejections is respectfully requested, and a timely Notice of Allowability is solicited. To the extent it would be helpful to placing this application in condition for allowance, the Applicant encourages the Examiner to contact the undersigned counsel and conduct a telephonic interview.

A check in the amount of $840.00 is enclosed, ($90.00) for the later presentation of five total claims in excess of twenty, pursuant to 37 C.F.R. § 1.16(c) and ($750.00) for request for continued examination (RCE) pursuant to 37 CFR § 1.17(e). The Commissioner is authorized to charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-0639.

Respectfully submitted,

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Brian M. Berliner
Attorney for Applicant
Registration No. 34,549

O'MELVENY & MYERS LLP
400 South Hope Street
Los Angeles, CA 90071-2899
Telephone: (213) 430-6000